

IV. *An Experiment touching the Weighing of Bodies of the same Species, but of very unequal Surfaces, in Common Water, being of an equal Weight in Common Air.* By Mr. Fr. Hauksbee, F. R. S.

I Took a Piece of Sheet-Brass (which I take to be more close and solid than that which is cast), of an exact Square Inch, weighing just 482 Grains. I then cut as many Square Inches of Brass Tinsel, as were equal to the same weight : The Number of these Square Inches were 255. Now these being of an equal weight with the other single piece in Common Air, I concluded from the inequality of their Surfaces, that a considerable disproportion in their Specifick Gravities would ensue, by weighing them in Water ; the Water in one touching so many Parts of the Superficies more than in the other : And twas from what is generally asserted, That the smaller Bodies are, so the Disproportions of their Bulks to their Superficies encrease ; and that supposing them infinitely small, or as Gold dissolv'd in *Aqua Regis*, or Silver in *Aqua Fortis* must be, then their Superficies being touch'd by so many Parts by the including *Mens-truum*, which is in such a Disproportion to their Diameters or Bulks of Matter, as disposes them to remain suspended in it. This I take to be the General Solution of that Phenomenon ; and 'twas these Considerations that gave Birth to this Experiment. Yet when I came to bring it to the Test, I found, to my great surprize, (being prepossess'd on the contrary) but two Grains difference, the single Piece weigh'd in the Water about

422 Grains ; all the other Bodies together, hardly two Grainslefs : And this upon two or three Tryals fucceeded much the fame, notwithstanding they were made with all the Caution imaginable. Now fince fo fmall an Inequality is the Matter of fact, between Bodies of the fame Species weigh'd in Water, whose Difproportions of Surfaces are, as 1 to 255, (for I reckon the Sides of all the Tincel Bodies to be equal to the Sides of the fingle Brafs piece,) I muft conclude, That thofe Bodies muft be infinitely fmall, whose inequality of their Surfaces to their Bulks does exceed thofe in this Experiment : For fuppoſing one of thefe thin Squares ſhould be wrought into the form of a Globe, I am very apt to think, That the Difproportion then of its Surface to its Bulk of Matter, would not be fo great as its Prefent form renders it.

Moreover, That altho the Difproportions of the Surfaces of Bodies, to their bulk of Matter be very great ; yet, that that is the only Reaſon why a Metallick Body ſhould be fufpended in a *Menſtrum* ſpecifically lighter than it ſelf, is very doubtful : For certainly if it was fo, we might reaſonably have expected to have met with a much greater Difference in the Bodies made uſe of in the newly recited Experiment : For there it ſhould ſeem neceſſary, that where we had fo great a Difference in point of Superficies, there we ſhould alſo have had a Difference ſomething proportional in point of weight ; which did not happen. I think therefore that there muſt be ſome other Agent, or Quality, not only to aſſiſt, but Govern in the Caſe. And what we call a corroding *Menſtrum*, I take to be a Fluid adapt to attract ſuch, or ſuch a Body, (as we find no one of them to operate alike on all ;) but, as I ſaid before, *Aqua Regis* for ſeparating the Parts of Gold, *Aqua Fortis* for Silver : Now this Separation of their Parts by Attraction, ſeems to proceed from the *Menſtrum's* Affection to the Body Im-

mer's'd, and the Body reciprocally to the *Menstruum*, and both to act on one another with greater Vigour, than either of their own Particles do upon their contiguous Fellows; by which means a Separation of Parts must (I think) consequently follow. Thus being at liberty, they with the *Menstruum* become as one Body, and remain suspended in any part of it by their Mutual Attraction. And that one *Menstruum* in this Case should affect one Body more than another, is no more than why the Magnet should affect Iron only.

V *A Letter from the Reverend Mr. W. Derham, F. R. S. to Dr. Hans Sloane, R. S. Secr. giving an Account of some Inundations; Monstrous Births, Appearances in the Heavens, and other Observables he received from Ireland. With his Observations on the Eclipse of the Sun, Sept. 3. and of the Moon, Sept. 18, 1708.*

Upminster, October 26. 1708.

S I R,

I Received some time since a Letter from *Maghraselt* in the North of *Ireland*, from a very Intelligent Person there, and great Well-wisher to our *Royal Society*, one Mr. *Neve*; who out of his own good Will had collected some of the *Lough-Neagh* Petrifications, Pieces of the *Giants-Causway*, and other Curiosities, and sent them, he tells me, as far as *Bristol*: But hearing the Society had of them already in their Repository, he took no further care of them.

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